West Virginia Department of Environmental Protection
Division of Air Quality

Fact Sheet

For Final Minor and Significant Modification Permitting Action Under 45CSR30 and Title V of the Clean Air Act

This Fact Sheet serves to address the changes specific to this Minor and Significant Modification, and shall be considered a supplement to the Fact Sheet corresponding with the Title V operating permit issued on June 24, 2011.

Permit Number: **R30-10700001-2011**
Application Received: **April 9, 2014**
Plant Identification Number: **107-00001**
Permittee: **E. I. du Pont de Nemours and Company**
Facility Name: **Washington Works**
Manufacturing Unit**: Nylon Resins Production (Part 5 of 14)**
Mailing Address: **P. O. Box 1217, Washington, WV 26181-1217**

Permit Action Number: MM01 and SM01 Revised: October 7, 2014

Physical Location:	Washington, Wood County, West Virginia
UTM Coordinates:	422.27 km Easting • 4,346.57 km Northing • Zone 17
Directions:	Route 68 west from Parkersburg to intersection of Route 892. Continue west on Route 892 with the plant being on the north side about one mile from the intersection of Routes 68 and 892.

Facility Description

Raw materials (organic acids and base) are transported to the site by railcars or trucks. The organic acids are powders that are pneumatically conveyed into storage hoppers or handled in bags. A liquid organic base is mixed with water in the railcar or truck, and then pumped into a storage tank. The organic acids and base are mixed with water in an atmospheric vessel to create the raw material (salt) for the polymer. The salt is held in tanks until pumped to the polymerization process.

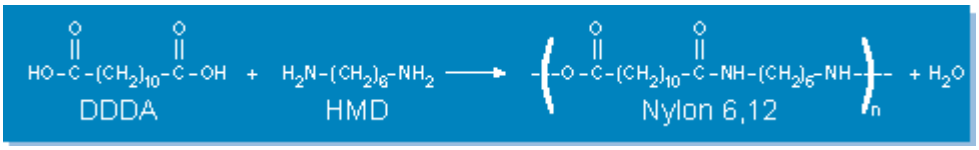
The salt can be pumped to an evaporator vessel for concentration using indirect steam heating, directly to an autoclave polymerization vessel, or it can be pumped to a continuous process system. A physical process of concentration of the water-based salt solution is what occurs in the evaporator before being sent to the autoclave. Nylon polymer is produced in the autoclave or in the continuous MPW1 process through application of heat and pressure. Water of dilution is driven off, as is water of reaction, creating nylon

from a condensation reaction. The vapor emissions are directed to a scrubber. When enough water has been driven off, the desired viscosity has been reached.

Nitrogen is used to pressure up the autoclave to allow the polymer to exit the bottom of the vessel through a valve and die assembly. The desired viscosity resin is pumped directly from the continuous system to a die assembly. Strands or ribbons of molten polymer are water quenched and cut by a pelletizer or dicer into small pellets, which are then screened and conveyed into a blender/dryer vessel. Residual moisture is removed in the dryer, and the pellets are pneumatically conveyed to a screener to remove longs and fines and then to a bin. The pellets are then packaged into bags or boxes and shipped to the warehouse or directly to customers.

Typically the batch autoclaves produce 6-12 nylon in accordance with the following polyamide chemistry:

Nylon 6,12
Nylons are the polyamide products from the polycondensation of diamines with dicarboxylic acids. Dodecanedioic Acid (DDDA) is used as the diacid monomer in Nylon 6,12 adhesives, resins and filaments.



The continuous process employed by the MPW1 process area utilizes a plug flow reactor, which produces nylon 6-6 as its primarily product. The DuPont Washington Works has divided the Title V Permit Application into the fourteen separate business units. This permit covers Business Unit 5 of 14: Nylon Resins Production.

SIC Codes: 2819, 2821, 2824.

Emissions Summary

The minor modification MM01 incorporates the R13-1145E applicable requirements resulting from the change in emission factors used to calculate emissions for Dowtherm Vaporizers 152Z-V3 and 152Z-V4. The emission factors used are now the more accurate vendor emission factors instead of previously used AP-42 factors.

Overall

Regulated Pollutant	Emissions Change	
	lb/hr	tpy
PM_{10}	0.06	0.22
SO_2	-0.02	0.14
NO_x	0.76	3.34
CO	0.02	0.14
VOC	-0.14	0.04

Title V Program Applicability Basis

With the proposed changes associated with this modification of the Nylon Area Permit, this facility as a whole maintains the potential to emit over 100 tons per year of criteria pollutants, over 10 tons per year of an individual HAP, and over 25 tons per year of aggregated HAPs. DuPont Washington Works is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

The modification to this facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR13	Permits for construction, modification, relocation, etc.
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for Hazardous Air Pollutants Pursuant to 40 C.F.R. Part 63.
	40 C.F.R. Part 63 Subpart DDDDD	Process Heaters and Boilers MACT
State Only:	45CSR§21-37	VOC Emissions

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the draft Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit *(if any)*
R13-1145E	August 4, 2014	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B, which may be downloaded from DAQ's website.

Determinations and Justifications

MM01

The Part 5 of 14 Nylon Resin Manufacturing unit contains six Vaporizers. For four of the vaporizers, vendor emission factors are used to calculate emissions. For the two others (152Z-V3 and 152Z-V4), AP-42 factors were used to calculate emissions. In order for more accurate emission calculations and for

consistency, R13-1145E was issued in part to use the more accurate vendor emission factors for Vaporizers 152Z-V3 and 152Z-V4. Condition 5.1.1 has been updated to reflect the updated emission calculations.

Part of Consent Order CO-R21-97-47 (which is now inactive) was incorporated into R13-1145E. The Z Area Acetic Acid System which is located in Section 5.0 Autoclave Plant has LDAR requirements. These LDAR requirements were included as Condition B.9 of R13-1145E and added to the Title V Permit as Condition 5.3.2. A new Emission Point ID (ZLDAR) was created to identify this system and added to the equipment table.

Condition B.10 was added to R13-1145E and requires that the Permittee follow the Rule 21 requirements that are specified in R13-2617 for heavy-liquid LDAR streams. This is given in Title V Permit Condition 3.1.14. The R13-2617 was intended to be a "catch all" for all R21 and R27 sources at the facility.

SM01

40CFR63, Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters

The Part 5 of 14 Nylon Resin Manufacturing unit contains six natural gas Vaporizers (254-01S, 254-02S, 254-05S, 254-06S, 152Z-V3, and 152Z-V4) that are considered existing Gas 1 process heaters with continuous oxygen trim systems at a major source and subject to Subpart DDDDD. They range from 14 to 18 MMBtu/hr. Section 8.0 has been created to list these requirements.

Condition 8.1.1 has been added and requires the Permittee to comply with 40CFR63, Subpart DDDDD for the six process heaters. Condition 8.1.2 requires a tune up every 5 years, burner inspection once every 72 months, inspection requirements for the burner, and the Permittee to optimize and measure the Carbon Monoxide emissions, and maintain an annual report. Condition 8.1.3 requires a one-time energy assessment of the process heaters. Condition 8.1.4 requires the Permittee to operate and maintain the source with safety and good air pollution control practices for minimizing emissions. Condition 8.4.1 requires the Permittee to keep records of notifications and reports submitted for 40 CFR 63, Subpart DDDDD. Condition 8.4.2 specifies how these records are kept and available. Condition 8.4.3 requires records of the concentrations of Carbon Monoxide emitted from the process heaters, description of any corrective actions, and the type and amount of fuel used. Condition 8.4.4 requires the Permittee to keep records of the amount of time that an alternative fuel is burned in the process heaters. Conditions 8.4.5 and 8.4.6 require the Permittee to maintain records of any startup and shutdown as well as the fuels used during those periods. Condition 8.5.1 requires the submittal of the initial Notification of Compliance status which includes: a description of the process heaters, signed certification that all work practices have been met, any deviations, certifications of compliance, and any times any fuel other than natural gas has been used. Condition 8.5.2 requires the Permittee to submit a signed certification that an energy assessment was completed. Condition 8.5.3 requires the Permittee to submit a signed statement that a tune up was completed for the process heaters. Condition 8.5.4 requires the Permittee to submit the compliance reports every 5 years. Condition 8.5.6 requires the Permittee to report any instances when the work practice requirements were not met. Condition 8.5.7 requires the Permittee to submit a Compliance report containing information about the facility and process heaters, dates of tune ups, any deviations, timelines for reporting, and to report using CEDRI accessed through EPA's Central Data Exchange.

45CSR30 Operating Permit Requirements

The visual emission observation standards are revised to provide consistency throughout the facility. The requirement to conduct monitoring with a maximum of forty-five (45) days between consecutive readings has been removed from Conditions 4.2.1, 5.2.1, 6.2.1, and 7.2.1. The facility still must conduct such monitoring at least once a month. For Conditions 4.2.1, 5.2.1, 6.2.1, and 7.2.1, the requirement that an opacity reading be required if visible emissions are identified within 24 hours has been changed to 72 hours. The exception that a 45CSR7A evaluation would not be required if the visible emission condition is corrected within 24 hours has been changed to 72 hours.

45CSR42

45CSR42 was repealed by S.B. 253 on June 1, 2012, therefore Conditions 3.1.13 and 3.5.10 have been removed from this Permit.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

1. 40 C.F.R. Part 64 - Compliance Assurance Monitoring (CAM)

   Part 5 is not subject for the following reason:
   40CFR§64.2(a)(3) – As a result of this modification, the facility did not add any pollutant specific emission units that have potential pre-control device emissions equal to or greater than 100 percent of the amount, in tons per year, of any pollutant that would require the source to be classified as a major source.

Request for Variances or Alternatives

None

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: August 22, 2014
Ending Date: September 22, 2014

All written comments should be addressed to the following individual and office:

Michael Egnor
Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Point of Contact

Michael Egnor
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Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1208 • Fax: 304/926-0478

Response to Comments (Statement of Basis)

N/A